

REMARKS

Claims 1-20 were examined in the Final Office Action mailed September 14, 2005. In response to the Applicant's February 14, 2006 after-final submission, the Advisory Action mailed March 2, 2006 maintained the pending rejections based on the Hamperl reference (U.S. Patent Publication No. 2003/0111893 A1).

The Applicants have carefully considered the Examiner's comments in the Advisory Action regarding the teachings of Hamperl, and have amended the pending independent claims to more clearly recite the brake disk configuration relative to a wheel rim mounted on the axle hub. Consideration of the foregoing amendments and the following remarks is respectfully requested.

The Pending Rejections and Objections: The Final Office Action includes:

- An objection to the drawings as failing to show the recited "hub adapter."
- A rejection of claims 1, 3, 5, 7-11, 13, 15 and 17-20 under 35 U.S.C. § 102(e) as anticipated by Hamperl.
- Rejections under 35 U.S.C. §103(a) of claims 2, 4, 12 and 14 as unpatentable over Hamperl, and claims 6 and 16 as unpatentable over Hamperl in view of the Iizuka reference (U.S. Patent Publication No. 2002/0029940 A1).

Where appropriate, the following remarks repeat the February 14, 2006 responses for the Examiner's convenience. Separate comments have been added addressing the above amendments and the comments in the March 2, 2006 Advisory Action.

1. The Hub Adapter Is Already Shown in the Drawings. The Applicant respectfully requests reconsideration and withdrawal of the drawing objection, on the grounds that the recited hub adapter is illustrated in original Fig. 1.

As recited in the claims, the hub adapter “is arranged to receive the hub portion of the rotor and is disposed on the axle hub such that the rotor is axially inboard when a wheel rim is mounted on the axle hub.” Element 6 in Fig. 1 is an example of the recited hub adapter. As noted in the Specification at ¶ [0020]: “Bearings 5 … rotatably support a specialized hub member 6 … formed in this embodiment with a flange portion 7 with an outboard face adapted to receive a brake rotor 8 of brake disc assembly 1.” Thus, element 6 “is arranged to receive the hub portion of the rotor” (on flange 7); element 6 “is disposed on the axle hub”; and element 6 is disposed on the axle hub “such that the rotor is axially inboard when a wheel rim is mounted on the axle hub (flange 7 and rotor 8 shown inboard of axle stub 4 of the hub).

In view of the original illustration in Fig. 1, the Applicant respectfully requests reconsideration and withdrawal of the pending drawing objection.

2. The Claims Are Patentable Over Hamperl. The Applicant respectfully traverses the rejections based on Hamperl, on the ground that this reference fails to teach or suggest all of the features of the present invention recited in the pending claims, and these deficiencies are not cured by Iizuka.

As previously described, the invention recited in claim 1 includes, *inter alia*, a

brake rotor comprising a hub portion, a friction portion, and a connection portion between the hub and friction portions which locates the friction portion outside the wheel envelope, and in particular, inboard of the wheel. In this Preliminary Amendment, the Applicant has amended the independent claims to more clearly recite the axial displacement of the friction portion of the rotor:

the rotor has a connecting portion extending from the hub portion which, when in an in-use position, places the friction portion axially inboard toward a center of the vehicle a distance sufficient to place the friction portion outside an axially-inboard-extending envelope of a wheel when the wheel is mounted on the axle hub.

In the February 14, 2006 after-final submission, the Applicant maintained that Hamperl reference does not disclose or suggest the claimed arrangements which position a rotor *outside* the envelope of a wheel. In response, it is stated in the Advisory Action that the Hamperl rotor is located outside of the wheel envelope, that this “is clearly shown in the drawings,” and that for removal of the brake disk, there must be sufficient room “for a mechanic to get around the clearance of the wheel and the disc.” Advisory Action, Continuation of 11 at page 2.

The Applicant has amended the claims to clarify that the rotor connecting portion extends inboard such that it “places the friction portion axially inboard toward a center of the vehicle” far enough “to place the friction portion outside an axially-inboard-extending envelope of a wheel when the wheel is mounted on the axle hub. The Applicant’s intent is to clarify that the friction portion of the claimed rotor is axially further inboard than the furthest *axially-inboard* extent of the wheel

rim. The Applicant respectfully submits that there is no disclosure or suggestion of this arrangement in Hamperl.

As previously noted, Hamperl is directed to a novel hub arrangement which permits a brake disc to be removed during brake service without first disassembling the entire hub and bearing assembly. Hamperl ¶ [0005] ("What is achieved [is], when the brake disc is being changed, there is no need to also remove the bearing arrangement."). Hamperl does not disclose or otherwise suggest that its conventional dual wheel axle arrangement illustrated in Fig. 1 is holding anything but conventional commercial vehicle rims (only partially illustrated in the drawing) – *i.e.*, wheel rims which one of ordinary skill would recognize extend outward (outer rim) and inward (inner rim) a considerable distance, with the inner wheel *axially* enveloping the vehicle brake in the usual manner.¹

In support of the statement that the Hamperl rotor is located outside the wheel envelope, it is noted that "there must [be] sufficient room for a mechanic to get around the clearance of the wheel and the disc." This is apparently based on the

¹ As stated in the February 14, 2006 after-final submission: "In fact, as far as rotor location is concerned, Hamperl Fig. 1 teaches nothing more than a very conventional commercial vehicle dual-wheel arrangement, *i.e.* two wheel rim bolting flanges (outboard wheel flange 10.1 and adjacent unnumbered inboard wheel flange) placed face-to-face and bolted to the hub end. It is well known in the art that the inboard wheel of a conventional dual wheel axle end substantially envelopes the wheel brake – and it is exactly this prior art arrangement which is illustrated in Hamperl: an inboard wheel rim and hub arrangement that one of ordinary skill would recognize, given the scale of the illustrated components, extends well inboard of brake rotor 4.1. Hamperl Fig. 1 (inboard wheel rim inboard extent not illustrated, but readily apparent to one of ordinary skill in view of the relative sized of the hub end and the wheel rim bolting flange faces)."

concept that the Hamperl rim cannot be extending over the rotor if Hamperl's new hub arrangement, which permits easier brake disk removal, is to work. The Applicant notes that Hamperl is not directed to removal of a disk *with a wheel in place*, but to removal of a disk *without disturbing the hub bearings*. Hamperl ¶ [0005]. In other words, *Hamperl does not contain anything which suggests that the brake disk is intended to be removed with the wheel rim in place* (which would be contrary to conventional practice, in which wheels are normally removed to service a brake). Thus, the conclusion that this reference teaches that the wheel rim does not axially extend over its brake rotor is not supported by the Hamperl specification or drawings.

In the absence of any discussion or illustration which suggests anything but conventional wheel rims in Hamperl, the Applicant respectfully submits that the Hamperl rotor is not "clearly shown" to be located outside of the wheel envelope, and therefore this reference neither discloses or suggests the invention recited in the pending claims. As previously noted, the Iizuka reference, which is cited for teaching mounting of a caliper on a vehicle axle, is silent as to this feature, and therefore fails to cure Hamperl's deficiencies.

Accordingly, reconsideration and withdrawal of the §§ 102 and 103 rejections based on Hamperl is respectfully requested.

CONCLUSION

In view of the foregoing amendments and remarks, the Applicant respectfully submits that claims 1-20 are in condition for allowance. Early and favorable consideration, and issuance of a Notice of Allowance for claims 1-20, is respectfully requested.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #011351.52876US).

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Respectfully submitted,



Jeffrey D. Sanok
Registration No. 32,169
Mark H. Neblett
Registration No. 42,028

CROWELL & MORING, LLP
P.O. Box 14300
Washington, DC 20044-4300
Telephone No.: (202) 624-2500
Facsimile No.: (202) 628-8844